



To Determine the Informativity of Various Auxiliary Diagnosis Methods

1. Gafarov Jakhongir Sobirovich
2. Mardanov Jamshid Jahongirovich

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¹ Doctoral student of the Department of Neurosurgery of the Bukhara State Medical Institute

² Bukhara State Medical Institute Associate Professor, Department of Neurosurgery, PhD .

Abstract: Spondylodiscitis is an inflammatory disease of an infectious nature, manifested by damage to various structures of the spine. According to some authors, this includes spondylitis, osteomyelitis, and discitis . These states are considered as different manifestations of the same inflammatory process. One of the manifestations of nonspecific spondylitis leads to the destruction of the colloidal structure and disruption of the supporting function of the spine. Currently, the disease with nonspecific spondylodiscitis reaches 8% of all cases of inflammation of the musculoskeletal system.

Key words: Spondylodiscitis, osteomyelitis, inflammatory process, diagnosis, neurosurgical removal.

Spondylodiscitis is a term for an inflammatory process in the intervertebral disc, body and joints of a vertebra. Symptoms of the disease are not particularly specific, develop gradually and subacutely, which makes it difficult to diagnose pathology. Timely detection of spondylodiscitis is of great importance for the prognosis. Spondylodiscitis is rare, with an average of 0.5–2.5 per 100,000 population [9, 13]. Recently, an increase in the incidence of spondylodiscitis has been noted . This is due to the improvement of diagnostic methods, an increase in the frequency of nosocomial infection, an increase in the number of immunocompromised patients, and an increase in the number of the elderly population [1, 13]. The disease mainly affects people older than 50 years [5, 7, 9, 13]. In our observation, only 1 patient was younger (29 years old). Men are more likely to get DM and, according to the literature, the ratio of men and women is 1.5–2:1, respectively [1, 2, 13]. Back pain is one of the most common complaints for which patients seek medical attention. Most often, back pain is caused by degenerative-dystrophic changes in the spine, but in 5% of cases it is a harbinger of more serious diseases, among which spondylodiscitis (SD) can be distinguished [5, 7, 12].

DM is an infectious lesion of the structures of the spine. According to some authors, this includes spondylitis, osteomyelitis and discitis . These states are considered as different manifestations of the same inflammatory process [7]. In all cases, the diagnosis was confirmed by the results of neuroimaging . 6 (85.7%) of 7 patients underwent X-ray computed tomography (CT) and magnetic - resonance imaging (MRI). Routine X -ray examination was performed in 28.6% of cases and did not reveal changes that would make it possible to suspect DM.

Microbiological and serological evaluation of the pathogen was not performed in any of the cases. All

patients were consulted by a phthisio-orthopedist, the presence of a tuberculosis lesion was excluded.

Drug treatment of patients with DM was carried out with broad-spectrum antibiotics intravenously, followed by continuation of oral forms of antibiotics on an outpatient basis.

DM is rare, with an average of 0.5–2.5 per 100,000 population [9, 13]. Recently, there has been an increase in the incidence of DM. This is due to the improvement of diagnostic methods, an increase in the frequency of nosocomial infection, an increase in the number of immunocompromised patients, and an increase in the number of the elderly population [1, 13]. The main symptom that forced patients to seek medical help was severe pain in the affected area, which in most cases (85.7%) bothered them constantly and intensified with movement. Pain intensity on a visual analogue scale ranged from 8 to 10 points. Only in 1 case the pain had a dull aching character and corresponded to 7 points on the visual analogue scale. Such a characteristic of pain was observed in the youngest patient, 29 years old, who had suffered an injury to the lumbar spine 3 years before the development of DM.

It should be noted that in all observed cases, the use of non-steroidal anti-inflammatory drugs (NSAIDs) in relation to pain was ineffective.

The lumbar spine was predominantly involved in the pathological process — 71.4% (n=5), in the remaining 2 cases, the thoracic spine was affected.

In 1 case, DM developed as a complication of neurosurgical intervention to remove a herniated disc; in another case, the development of an inflammatory process in the intervertebral disc and vertebral body was preceded by a lumbar injury with fractures of the transverse processes.

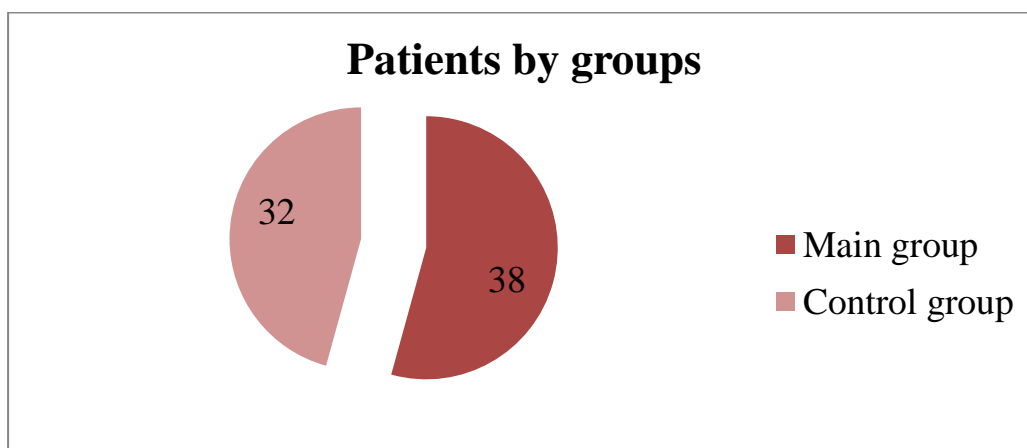
The initial symptoms of DM practically do not differ from the symptoms of degenerative lesions of the spine, being essentially an inflammatory purulent process. The disease threatens with deformation of bone formations and destruction of neural structures, dangerous with the development of generalized sepsis. Accordingly, early diagnosis is important for the further prognosis of DM, and it is precisely this that presents a difficulty for the practitioner due to the nonspecific clinical picture.

Purpose of the study: Improving the results of treatment of spondylodiscitis through timely diagnosis and improvement of complex treatment methods with stabilization of the spinal segment.

Materials and methods of research: The material of the research is patients with spondylodiscitis. It is planned to analyze the retro- and prospective material of 70 patients who were treated at the BOMC and BukHOT in the period from 2017 to 2023 and their own clinical observations. It is planned to examine patients clinically, neurologically and paraclinically (MRI, MSCT, X-ray)

Research results. The main symptom that forced patients to seek medical help was severe pain in the affected area, which in most cases (85.7%) bothered them constantly and intensified with movement. Pain intensity on a visual analogue scale ranged from 8 to 10 points. Only in 1 case the pain had a dull aching character and corresponded to 7 points on the visual analogue scale. Such a characteristic of pain was in the youngest patient, 29 years old, who had suffered an injury to the lumbar spine 3 years before the development of spondylodiscitis.

The main group consisted of 38 patients. The control group consisted of 32 patients

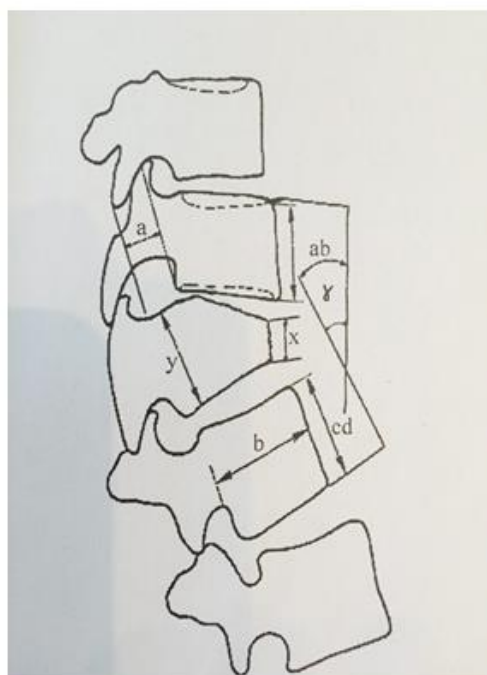


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Distribution of patients by sex and age (according to WHO classification)

Age in years	Floor				Total	
	Male		Female			
	abs .	%	abs .	%	abs .	%
Up to 20 years old	1	1.4	3	4.2	4	5.6
21-44 years old	eleven	16	15	21	27	37
45-59 years old	12	18	20	28	32	46
60 years and older	2	2.8	6	8	8	11.4
Total	26	37	44	63	70	100

Assessment of spinal injuries based on x-ray studies



x – передний размер высоты тела поврежденного позвонка
 ab – передний размер высоты тела вышерасположенного неповрежденного позвонка
 cd - передний размер высоты тела нижерасположенного неповрежденного позвонка
 y - задний размер высоты тела поврежденного позвонка
 a – величина переднего смещения выше перелома
 b – величина сагиттального размера тела ниже перелома
 γ – угол локального кифоза

The lumbar spine was predominantly involved in the pathological process — 71.4% (n=5), in the remaining 2 cases, the thoracic spine was affected. 85.7% of patients in the past suffered from - degenerative-dystrophic changes in the structures of the spine, which was expressed in pain and limitation of movement in the affected area even before the onset of the infectious process. This masked the manifestations of spondylodiscitis and made diagnosis much more difficult.

Conclusions. In our observation, the following changes were found that helped in the diagnosis of spondylodiscitis : trabecular edema of the vertebral bodies, changes in the MRI signal in the area of adjacent vertebrae , deformity of the endplates, a decrease in the height of the affected disc, thickening of the posterior longitudinal ligament, a decrease in signal intensity on T1-weighted image, structural changes in the vertebral bodies. The application of the proposed algorithm for early diagnosis and surgical tactics in the treatment of patients with nonspecific infectious and inflammatory diseases of the spine led to a reduction in the time to the provision of specialized neurosurgical care from 3 to 1 month, a decrease in the frequency of complications complicated by neurological deficit (from 21.9 to 13.3%) and systemic inflammatory response syndrome (from 79.5 to 39.9%) forms of these diseases of the spine upon admission to the neurosurgical hospital.

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